



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

145

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,940	08/04/2003	Carlos A. Gonzalez	884.355US2	5194
21186	7590	06/17/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			DINH, TUAN T	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

K28

Office Action Summary

Applicant No.

10/633,940

Applicant(s)

GONZALEZ ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/8/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-37 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 4, 6-8, 11, 17-21, 23-25, and 32-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 4-14 of U.S. Patent No. 6,657,131. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 1, 4, 6-8, of an instant application, are apparently disclose in claims 1, 3-6 of U.S. Patent 6,657,131.

Claims 11, 17-21, of an instant application, are apparently disclosed in claims 7-12 of U.S. Patent 6,657,131.

Claims 23-25, of an instant application, are apparently disclosed in claims 13-14 of U.S. Patent 6,657,131.

Claims 32-33, of an instant application, are obviously disclosed in claims 1 and 3 of U.S. Patent 6,657,131 because "a pressure plate including a first central region (of claimed invention)" and "a pressure plate having a first apex (US patent 6,657,131)" are equivalent, and also, "means for...second peripheries" of claimed invention and "a set of one or more fastener...second periphery" of US Patent 6,657,131 are equivalent function and structure to apply forces to a plate.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-5, 11, 23, and 32-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonefoy (U. S. Patent 4,511,869).

As to claim 1, 32, 35, Bonefoy discloses a retention mechanism, an apparatus, and a method (10, column 3, lines 52-53) for mounting an integrated circuit package to a circuit board (14, column 3, lines 55-56) as shown in figures 1-7, comprising:

a dish-shaped, elastically deformable pressure plate (22, column 4, line 13), having a first apex and a first periphery spaced away from the first apex, the pressure plate being deformable by applying a first force to the first periphery directed generally towards the first apex;

a dish-shaped, elastically deformable backing plate (23, column 4, line 13), having a second apex and a second periphery spaced away from the second apex, the backing plate being deformable by applying a second force to the second periphery directed generally towards the second apex; and

means for or one or more fasteners (24 having fastener 25 and 27, column 4, line 14) simultaneously applying the first and second deforming forces to the first and second peripheries to engage the first apex with a surface of the integrated circuit package and the second apex with a surface of the circuit board so as to effect continuous electrical continuity between the integrated circuit package and the circuit board (see column 4, lines 8-61).

As to claims 4, 33, 36, Bonnefoy further discloses an elastically deformable gasket (29, column 4, lines 62-63) positioned between the pressure plate and the integrated circuit package.

As to claims 5, 34, 37, Bonnefoy discloses in figure 7 that one or more of the pressure, backing plates or the gasket defined one or more windows to expose one or more selected portions of the plates.

As to claim 11, Bonnefoy discloses the retention mechanism (10) as shown in figures 1-7 comprising:

a paraboloid, elastically deformable pressure plate (22), having a concave surface, a convex surface, an apex, and a periphery spaced away from the summit, the pressure plate being deformable by applying a first force to the periphery directed generally towards the summit;

Art Unit: 2827

an integrated circuit package (substrate 12 having band 30) having a top and a bottom surface, the convex surface of the pressure plate being contactable by the top surface;

a circuit board (14 having plate 20) having a top and a bottom surface, the bottom surface of the integrated circuit package being contactable by the top surface; and

a paraboloid, elastically deformable backing plate (23), having a concave surface, a convex surface, an apex, and a periphery spaced away from the summit, the backing plate being deformable by applying a second force, opposing the first force, to the periphery of the backing plate directed generally towards the summit of the backing plate, the bottom surface of the circuit board being contactable by the convex surface of the backing plate; and

one or more fasteners (25, 27) to simultaneously apply the first and second deforming forces (24) to the peripheries of the plates to engage the top surface of the integrated circuit package with the convex surface of the pressure plate and the bottom surface of the circuit board with the convex surface of the backing plate and to deform the plates so as to effect continuous electrical continuity between the integrated circuit package and the circuit board.

As to claim 23, Bonnefoy discloses an electronic assembly as shown in figures 1-7 comprising:

a paraboloid, elastically deformable pressure plate (22), having a concave surface, a convex surface, an apex, and a periphery spaced away from the

Art Unit: 2827

summit, the pressure plate deformed by first force applied to the periphery directed generally towards the summit;

an integrated circuit package (12) having a top and a bottom surface, the top surface in contact with the convex surface of the pressure plate;

a circuit board (14) having a top and a bottom surface, the top surface in contact with the bottom surface of the integrated circuit package; and

a paraboloid, elastically deformable backing plate (23), having a concave surface, a convex surface, an apex, and a periphery spaced away from the summit, the backing plate deformed a second force, opposing the first force, applied to the periphery of the backing plate directed generally towards the summit of the backing plate, the convex surface of the backing plate in contact with the bottom surface of the circuit board; and

means for (24) simultaneously applying the first and second deforming forces to the periphery of the pressure plate and the periphery of the backing plate to engage the convex surface of the pressure plate with the top surface of the integrated circuit package and the convex surface of the backing plate with the bottom surface of the circuit board and to deform the plates so as to effect continuous electrical continuity between the integrated circuit package and the circuit board.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-7, 12-15, 17-21, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnefoy ('869) in view of Frankeny et al. (U. S. Patent 5,770,891).

As to claims 6-7, Bonnefoy discloses all of the limitations of the claimed invention, except for a gasket having a height less than about 1mm. Frankeny shows a gasket (3) having a height less than about 1 millimeter (column 4, lines 6-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a height (or thickness) of a gasket < 1mm of Frankeny to employ the retention mechanism of Bonnefoy in order to reduce in size and resilient connection between an IC chip and a PCB.

As to claims 17-19, Bonnefoy discloses all of the limitations of the claimed invention, except for the plate having a height less than about 1.5mm. Frankeny shows an interposer (3) having a height less than about 1.5 millimeter (column 4, lines 6-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a height (or thickness) of an interposer <

Art Unit: 2827

1.5mm of Frankeny into the retention mechanism of Bonnefoy in order to reduce in size and resilient connection between an IC chip and a PCB.

As to claims 12, 15, 24-25, Bonnefoy does not disclose a connector without pinholes interposed between the integrated circuit package with pinless and the circuit board.

Frankeny shows an IC chip package comprising a connector without pinholes (3) interposed between the integrated circuit package with pinless (1) and the circuit board (10) disclosed in figures 1-8.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching of Frankeny to employ the retention mechanism of Bonnefoy in order to serve as an interposer of an electrical interface connection between an IC chip and a PCB.

As to claims 13-14, Frankeny shows the connector having a height less than about 1 millimeter (column 4, lines 6-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a height (or thickness) of a connector < 1mm of Frankeny to employ the retention mechanism of Bonnefoy in order to reduce in size and resilient electrical connection between an IC chip and a PCB.

As to claims 20-21, Frankeny shows an IC package including an organic LGA or flip-chip PGA disclosed in figures 5-7.

It would have been obvious to have a teaching of Frankeny to employ the mechanism of Bonnefoy for the purpose of increasing electrical strength connections.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnefoy in view of Frankeny, and further in view of Dozier, II et al. (U. S. Patent 5,772,451).

Bonnefoy and Frankeny disclose all of the limitations of the claimed invention, except for the plates are made from a material selected from the group consisting of beryllium copper and steel. Dozier shows a spring element made of Beryllium copper material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have material of Beryllium copper of Dozier to employ the mechanism of Bonnefoy and Frankeny in order to provide a low cost, light weight, and thin mechanism connection.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnefoy ('869) in view of Kearney et al. (U.S. Patent 6,616,327).

Bonnefoy does not disclose the first or second peripheries of the plates that are a fractal shaped.

Kearney et al. shows a plate (4) in figure 5 having a fractal shaped. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a fractal shaped plated in the retention mechanism of Bonnefoy, as taught by Kearney et al, for the purpose of enabling or facilitating attachment to the circuit board.

Art Unit: 2827

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnefoy ('869) in view of Pendse (U.S. Patent 5,528,462).

Bonnefoy does not disclose a heatsink in contact with the pressure plate. Pendse shows a heatsink (212, column 5, lines 13-15), see figure 2 attached on layer (214).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a heatsink, as taught by Pendse, into the mechanism of Bonnefoy, in order to reduce heat dissipating from components.

Allowable Subject Matter

10. Claim 10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

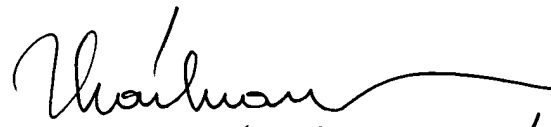
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2827

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Dinh
June 11, 2004.


LUAN THAI 6/14/04
primary Examiner